

PATENT SPECIFICATION

(11) 1 258 450

DRAWINGS ATTACHED

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- (21) Application No. 7401/69 (22) Filed 11 Feb. 1969
 (31) Convention Application No. 1970 (32) Filed 15 Feb. 1968 in
 (33) Sweden (SW)
 (45) Complete Specification published 30 Dec. 1971
 (51) International Classification H 01 f 15/02
 (52) Index at acceptance
 HIT 1F 7C6



(54) ELECTRIC TRANSFORMER

(71) We, AB ERIK SUNDBERG, of Industrivägen 12, 191 47 Sollentuna, Sweden, a Swedish Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to an electric transformer in which fixing means are provided for mechanically connecting the transformer to auxiliary members such as a base or a terminal board.

A conventional form of small transformer and inductor is one in which the windings are wound on a bobbin consisting of a short tube provided with end plates, and made entirely of an insulating material.

The iron core is inserted into one or more wound bobbins and the parts connected together so that the core and windings form a unit in which the bobbin or bobbins is or are the mechanical element which holds the unit together.

This unit constitutes the electrically active member, but the unit is also provided with securing means, partly for securing said unit to a base plate or to the bottom plate of a casing, and partly to serve as securing means for terminal blocks, fuses and similar installation elements.

In the case of small transformers the cost of these securing means, and particularly the cost of mounting them by screw joints or the like—is significant when compared with the cost of the active parts of the device.

A reduction in price with regard to mounting said securing means can be obtained by the special technical means afforded by structural details pressure moulded from a plastic material. Consequently, it is now quite usual to use this technique when making winding bobbins.

According to the invention there is provided an electric transformer in which windings are mounted on one or more bobbins each of which has end walls of insulating material and surrounds a part of an iron core so that the iron core and windings form

[Price 25p]

a mechanical unit; fixing means are provided on the bobbin or at least one of the bobbins for mechanically connecting the transformer to an auxiliary member such as a base or a terminal board, said fixing means on the or each bobbin comprising a plurality of resilient self-locking hooks, at least one of which is disposed on each end wall of said bobbin or a plurality of apertures respectively engageable for locking engagement with complementary apertures formed in a mounting plate or with complementary resilient self-locking hooks projecting from a mounting plate.

The fixing means may thus comprise complementary pairs of mounting members which can be brought into engagement with each other and locked in engagement by means of resilient elements forming part of the mounting. It is suitable in this respect that the mounting members secured to the bobbin have the most complicated shape, to allow the other mounting members to be given a simple, and primarily an inexpensive shape. The mounting members of more complicated shape, which can be in the form of resilient hooks made from the same plastic material as the bobbin, may therefore be moulded in the same manufacturing operation as the bobbin.

An embodiment of the invention is herein-after described with reference to Figures 1—6 of the accompanying drawings. The Figures 1—3 relate to a conventional small transformer manufactured according to the usual techniques. Figures 1 and 3 show views of the transformer and Figure 2 a perspective view of the bobbin. The core 1 is introduced into the tube 5 of the bobbin and its end plates 3. The winding 4 is wound on the bobbin. The output leads of the winding are passed through holes 6 in the end plates of the bobbin. The core is kept together by means of bolts or rivets which are passed through holes 2. In this conventional method of manufacture said bolts or rivets are secured to securing means usually provided with screws.

Figures 4 and 5 show an embodiment of

the transformer according to the invention. In this case each end plate is provided with a hook 7 projecting outside each end plate, forming one mounting half on one side of the transformer. At the same time, each end plate is provided with two hooks 11 on the other side of the transformer, the four hooks also forming one mounting half for the other side of the transformer. Figure 6 shows a mounting plate 9 provided with holes 10 and 12 forming securing means into which the corresponding hooks 7 and 11, respectively, can engage. Thus similar plates can be used to engage hooks 7 on one side of the transformer and hooks 11 on the other side of the transformer. Hooks 7 and 11 can also be provided at the mounting plate, in which case an inversion of the elements shown in Figures 4, 5 and 6 is obtained.

The number and form of the mounting halves can be varied and additional studs may be provided. In the drawing there are shown elastic projections 8 at the end plates, adapted to provide a resilient biasing of the mounting plate.

The embodiment shown comprises a method of manufacture in which the lower hooks are adapted for securing the transformer unit on a base plate, while the upper hooks are adapted to secure a terminal block onto the transformer.

WHAT WE CLAIM IS:—

1. An electric transformer in which windings are mounted on one or more bobbins each of which has walls of insulating material and surrounds a part of an iron core so that the iron core and windings form a mechanical unit; fixing means are provided on the bobbin or at least one of the bobbins for mechanically connecting the

transformer to an auxiliary member such as a base or a terminal board, said fixing means on the or each bobbin comprising a plurality of resilient self-locking hooks at least one of which is disposed on each end wall of said bobbin or a plurality of apertures respectively engageable for locking engagement with complementary apertures formed in a mounting plate or with complementary resilient self-locking hooks projecting from a mounting plate.

2. An electric transformer according to Claim 1, in which the fixing means provided on the end walls of the or each bobbin are moulded integrally with the bobbin from an electric insulating plastics material.

3. An electric transformer according to Claim 1 or Claim 2, in which each end wall of the or each said bobbin is provided with fixing means which together with complementary fixing means provided on a mounting plate, form at least one complementary pair of mounting members, at least part of the fixing means provided on the two end walls of each bobbin being positioned on the same side of the iron core so that together they form at least two latching components.

4. An electric transformer according to any preceding claim, in which each end wall of the or each said bobbin is provided with fixing means disposed on each side of the iron core.

5. An electric transformer substantially as hereinbefore described and illustrated in Figures 4 and 5 of the accompanying drawing.

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Printed for Her Majesty's Stationery Office by Burgess & Son (Abingdon), Ltd.—1971
Published at The Patent Office, 25 Southampton Buildings, London, WC2A 1AY
from which copies may be obtained.



